NAVFAC SOUTHWEST

Department of Navy
Enhancing San Diego Bay Quality

Presentation to the Regional Water Quality Control Board, San Diego Region

14 April 2021

Jason Golumbfskie-Jones, P.E. & Walter Wilson
N40 – Fleet Environmental Coordinator
Navy Region Southwest (NRSW)

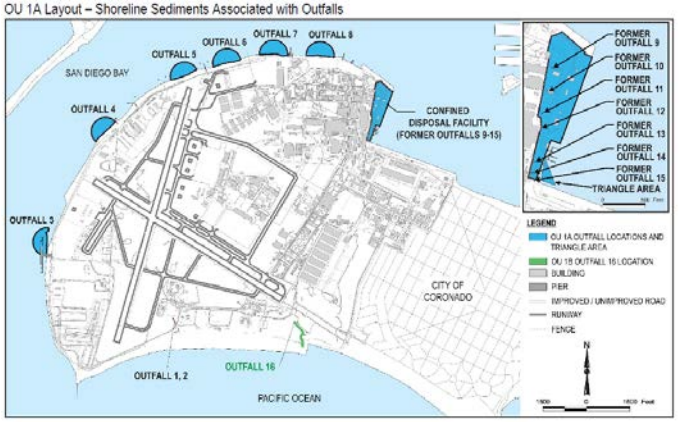
Derral Van Winkle, P.G.
Environmental Restoration Program Manager
NAVFAC Southwest

Today's Presentation Agenda

- **Sediment Cleanup & Investigation**
- **Navy Maintenance Dredging**
- **Bonhomme-Richard Fire**
- **Water Quality Improvements**
- **Regional Bay Enhancement Projects**

Navy Sediment Cleanup Efforts

- **Naval Air Station North Island – Installation Restoration (IR) Site 1**
  - **–Shoreline sediments near 16 storm drains; chemicals of concern (COCs): metals, polycyclic aromatic hydrocarbons (PAHs)**
  - **–Multiple investigations & risk evaluations on various outfalls (1983 – 2012);**
  - **–site split to two Operable Units (OUs); OU-1A and OU-1B**



  - **–Removal action conducted to support dredging operation (2002)**
    - **78,000 cubic yards (cy) sediments removed, placed in confined disposal facility with cap on installation**
    - **Clean fill (10 – 14 feet) emplaced over removed sediment**
  - **–No further action (NFA) for 15 outfalls (1- 15) achieved under OU-1A Record of Decision (ROD) – 2015; NFA letter for additional outfall (OU-1B, Outfall 16) in 2015**

Navy Sediment Cleanup Efforts

- **Naval Amphibious Base Coronado IR Sites 2, 3, 4, and 6**
  - **Various sediment cleanup sites including outfalls, boat repair basin, and sandblast grit; COCs: metals**
  - **Sites included terrestrial and sediment portions**
  - **Sediment portions of sites closed with ROD (2016)**
- **Naval Training Center – Boat Channel, Base Realignment and Closure (BRAC) installation**
  - **Discharge from storm drains and surface runoff; COCs: metals/pesticides**
  - **Implemented remedy in 2017/2018; dredged and stabilized sediments with offsite disposal**
  - **~31,000 cy removed. Post removal samples less than cleanup goals.**
  - **Navy produced Remedial Action Complete Report – accepted as final by SD RWQCB in 2019. No further action required.**

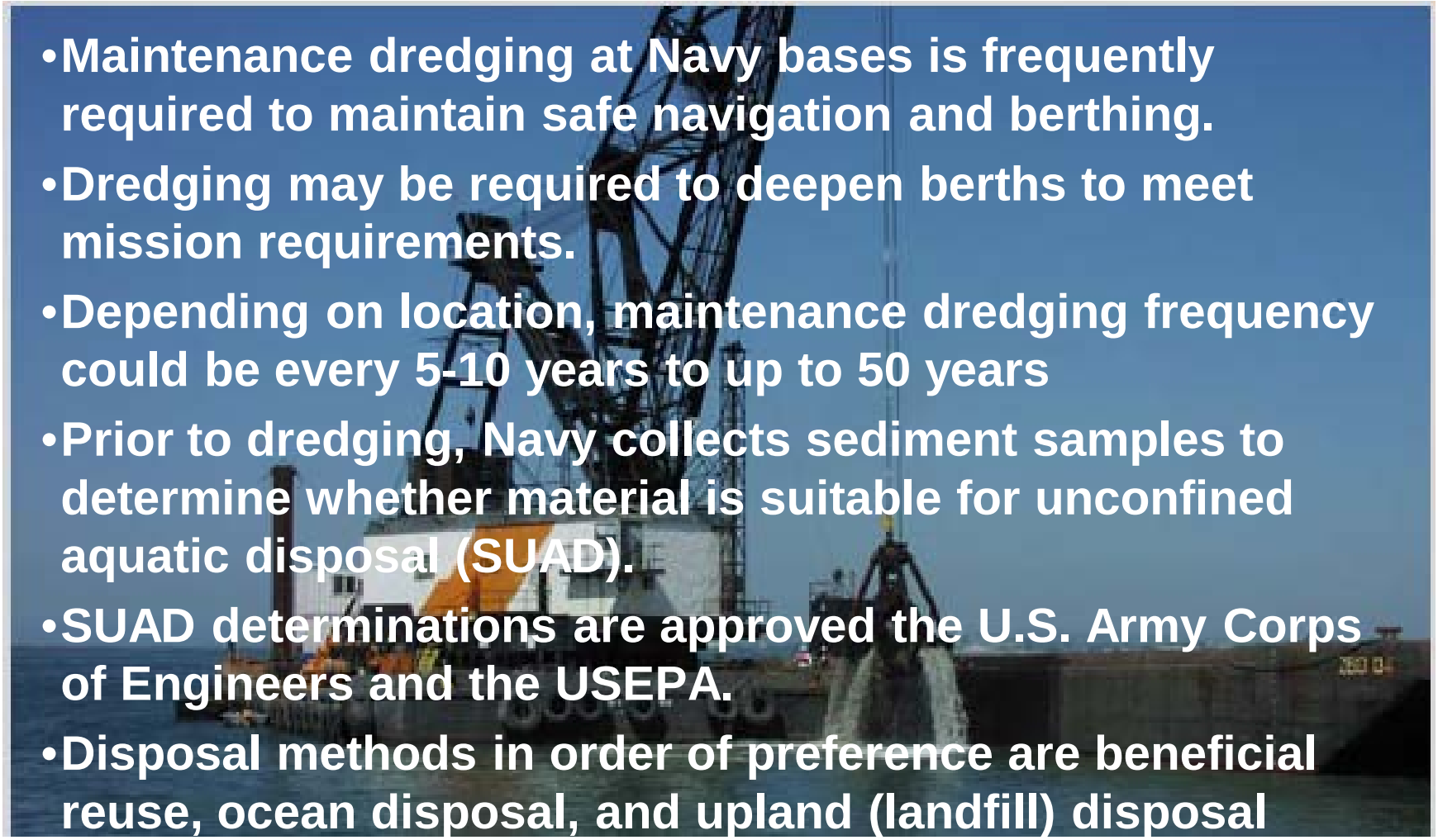
Navy Sediment Investigation Efforts

- **Sediment Investigations at Naval Base San Diego**
  - **Sediment investigation**
    - **WCSD completed per Navy policy, September 2020**
    - **Preliminary Assessment/Site Inspection (PA/SI) investigation in planning stages; start in FY22**
  - **Munitions Response Program (MRP) Site 100**
    - **PA completed in 2001/SI evaluations completed 2010 (Phase I) and 2015 (Phase II)**
    - **Pilot studies using advanced sensing technologies completed in 2017 and 2020**
    - **Munitions items removed from the site through recent Navy maintenance dredging.**

WCSD – Watershed Contaminated Source Document, defined in DON sediment policy 08 Feb 2002

Controlled Unclassified Information (CUI)

Navy Historical Dredging Operations



- Maintenance dredging at Navy bases is frequently required to maintain safe navigation and berthing.
- Dredging may be required to deepen berths to meet mission requirements.
- Depending on location, maintenance dredging frequency could be every 5-10 years to up to 50 years
- Prior to dredging, Navy collects sediment samples to determine whether material is suitable for unconfined aquatic disposal (SUAD).
- SUAD determinations are approved the U.S. Army Corps of Engineers and the USEPA.
- Disposal methods in order of preference are beneficial reuse, ocean disposal, and upland (landfill) disposal

Navy Dredging - Background

Controlled Unclassified Information (CUI)

Navy Historical Dredging Operations

Maintenance Dredging over last 5 years

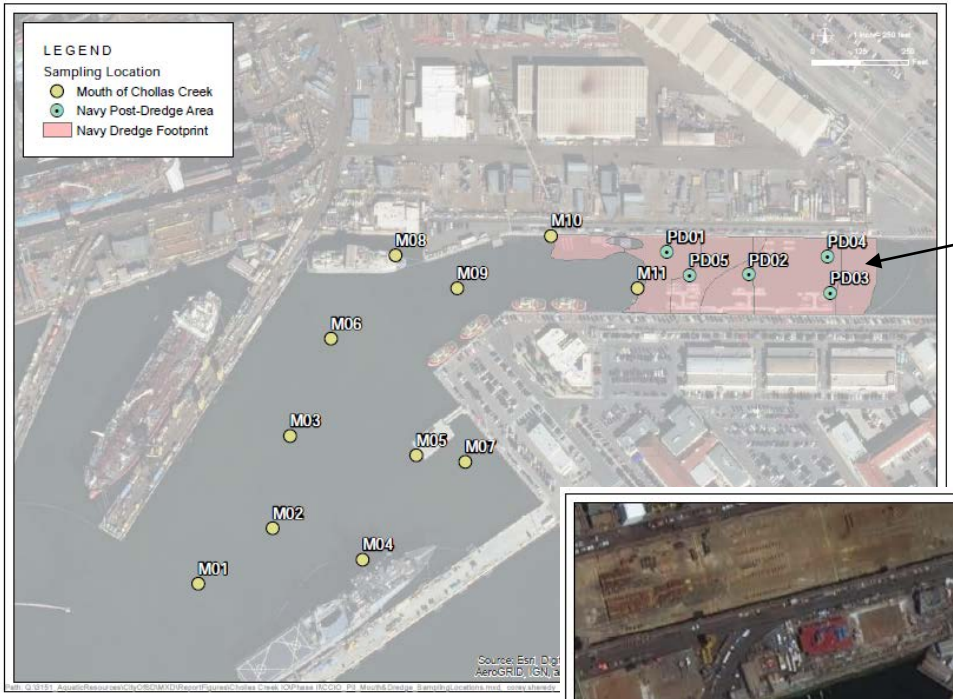
- **Naval Base San Diego**
  - **FY12 Maintenance Dredging: Piers 2, 6, 7 13, former Pier 14, and Chollas Creek (2017) – Combination of upland and ocean disposal**
  - **FY18 Maintenance Dredging: Piers 4, 5, 8, and Mole Pier - Combination of upland and ocean disposal (2019)**
  - **FY19 Maintenance Dredging: Piers 1, 3, and Paleta Creek– 100% upland (2020)**
- **Naval Base Point Loma**
  - **ARCO Floating Dry Dock (2020) – ocean disposal**
  - **Pier 5000 N Approach (2020) – ocean disposal and beneficial reuse**
- **Naval Amphibious Base Coronado**
  - **Fuel Pier, Piers 1-14, 16, 19, & 21 (2016)– Combination of upland disposal, ocean disposal, and beneficial reuse**
- **Approximately 130,000 CY of contaminated sediment removed**

Navy Dredging Operations

Photo credit: Mike Brison, 2020

Controlled Unclassified Information (CUI)

Navy Dredging Operations – NBSD Chollas Creek



Chollas Creek dredging - 2017

Chollas Creek Mouth dredging – planned summer 2021

Navy Planned Dredging Operations

- **Naval Base San Diego**
  - **FY20 Maintenance Dredging: Pier 10, Chollas Creek Mouth, and Approaches to Piers 1-3, 7-8 & 10-13**
    - Combination upland and ocean disposal
    - Tentative start date June 2021
  - **Berth Deepening Dredging: Mole Pier Floating Drydock**
    - Sediment sampling Spring 2021; Tentative start date 2023/2024
- **Naval Base Point Loma**
  - **Inner Berth maintenance dredging**
    - Sediment approved for beneficial reuse; Tentative start September 2021
  - **Inner Berth Pier 5000 expansion berth deepening dredging**
    - Sediment approved for ocean disposal; Tentative start September 2021
  - **Fuel Pier maintenance dredging**
    - Sediment approved for ocean disposal; Tentative start late 2021/early 2022

Navy Dredging – Water Quality Monitoring

- **Water Quality monitoring conducted during maintenance dredging at Naval Base Point Loma and Naval Base San Diego**
  - **Samples collected during NBSD FY18 and FY19 Maintenance Dredging, and NBPL ARCO and Pier 5000 dredging**
    - Measured turbidity, dissolved oxygen and pH
    - Fixed monitoring with optical sensors deployed off the pier
    - Mobile monitoring at 200 and 500 ft arcs during dredging
  - **Demonstrated Basin Plan limits are achievable for dissolved oxygen and pH**
  - **Background turbidity levels in the bay are very low (less than 5 NTUs)**
  - **Turbidity levels depend on tide, sediment grain size, and BMPs**
    - Turbidity was lower at NBPL than NBSD due to larger grain size
    - Increase in turbidity seen on ebb (outgoing) tides
  - **Silt curtains are an effective BMP at reducing turbidity**
    - Sample results inside curtain – up to 50 NTUs
    - Sample results outside curtain – below 5 NTUs

Bonhomme-Richard Fire

- **Bonhomme-Richard caught fire 12 July 2020 and burned for four days.**
  - **Environmental outreach**
  - **Support from various federal fire teams**
  - **Tug boat firefighting support**
  - **Water drops from Navy helicopter squadrons**
  - **AFFF was used on the last day of fire fighting**
- **Sampling events:**
  - **1 day, 14 days and 30 days after the fire.**
  - **Water sampling results indicated that the BHR fire response has not contributed long-term water pollution to the San Diego Bay.**
- **Draft monitoring report completed**
  - **Sent to the Water board staff in Dec 2020 for comments. Final report expected in April**

Bonhomme-Richard Sampling Results

Sampling Name	Sample Date	VOC	Semi VOC*	PAHs	Furans	Dioxins	PFAS
	UNITS	µg/l	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*
T1C2	7/16/2020	ND	ND	≥MDL; <MRL	All ND or J flagged; TEQ = NA	All ND or J flagged; TEQ = NA	11 (6:2 FTS); 1.0 (PFHxA); 0.87 (PFOS); 0.88 (PFPeA); ND
T2C4	7/16/2020	ND	ND	≥MDL; <MRL	All ND or J flagged; TEQ = NA	All ND or J flagged; TEQ = NA	3.5 (6:2 FTS); 1.1 (PFHxA); 1.1 (PFOS); 1.0 (PFPeA); ND
T3C7	7/16/2020	ND	ND	≥MDL; <MRL	All ND or J flagged; TEQ = NA	All ND or J flagged; TEQ = NA	2.4 (6:2 FTS); 0.94 (PFHxA); 0.86 (PFOS); 0.84 (PFPeA); ND
(C11)BR	7/16/2020	ND	ND	≥MDL; <MRL	All ND or J flagged; TEQ = NA	All ND or J flagged; TEQ = NA	12 (6:2 FTS); 1 (PFHxA); 1.5 (PFOS); 0.90 (PFPeA); ND
Field Blank	7/16/2020	ND	ND	ND	ND	ND	ND
T4C7	7/30/2020	NA	ND	≥MDL; <MRL	all ND or J flagged; Total Toxic Equivalency (TEQ) value = NA	all ND or J flagged; Total Toxic Equivalency (TEQ) value = NA	10 (6:2 FTS); ND
T4C8	7/30/2020	NA	ND	≥MDL; <MRL			5.3 (6:2 FTS); ND
T4C11	7/30/2020	NA	ND	≥MDL; <MRL			5.3 (6:2 FTS); ND
T1C2	7/30/2020	NA	ND	≥MDL; <MRL			4.8 (6:2 FTS); ND
Field Blank	7/30/2020	NA	ND	ND			ND
MDL		**0.08 - 2.3**	**0.43 - 1.6**	**0.08 - 2.3**	**variable**	**variable**	**0.84-1000**
MRL		**1.0 - 5.0**	**5**	**1.0 - 5.0**	**variable**	**variable**	**0.84-1000**

Preliminary Bonhomme Richard Data Result Memo from US Navy to REQCB, 12 Dec 2020

Controlled Unclassified Information (CUI)

Bay Health Enhancement – Water Quality Improvements

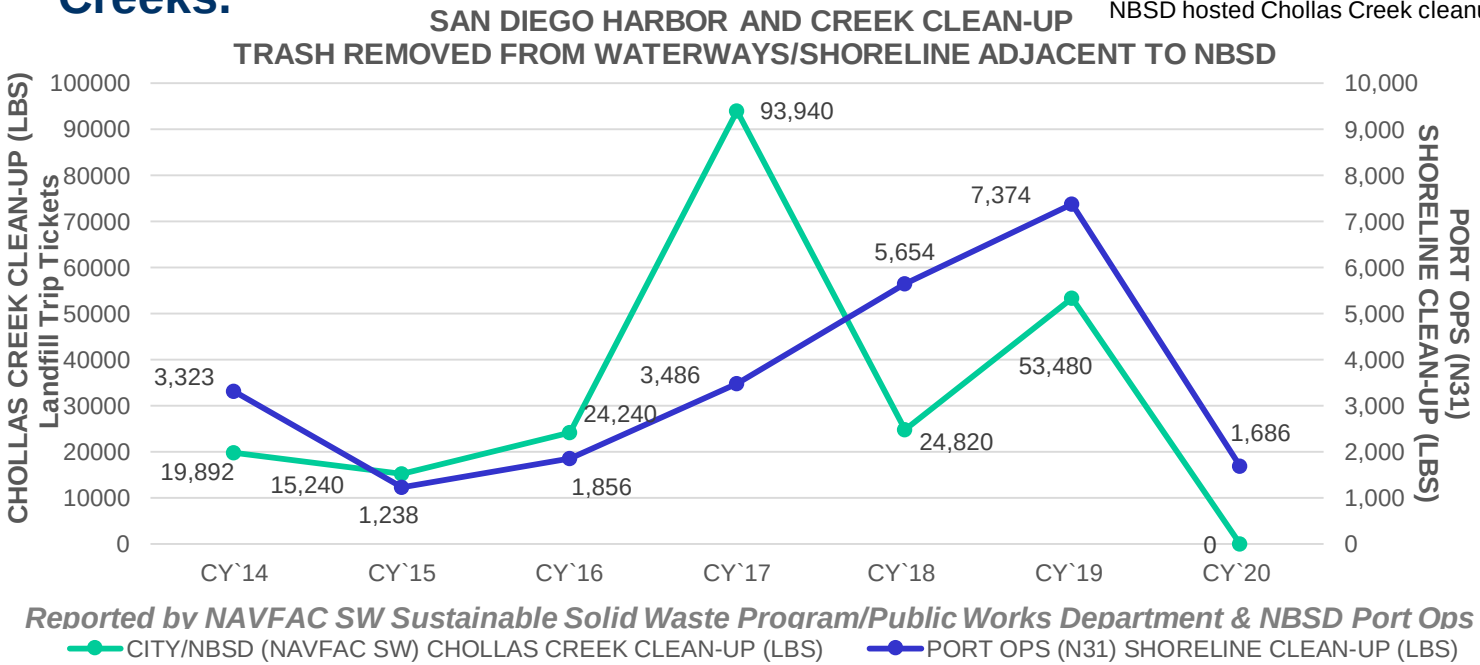
- **Pier Piling Replacement Program**
  - **Over the last 15-20 years though repair and reconstruction efforts on the waterfront the Navy has removed and continues to remove thousands of creosote pilings and replace them with inert material such as concrete or jacketed piles.**

- **Steam Decentralization Program**
  - **Replaced large steam generation systems with smaller units. Condensate recirculated with smaller units instead of being discharged into Bay; eliminated condensate and zinc loading into San Diego Bay.**

Bay Health Enhancement – Water Quality Improvements

- **San Diego Bay, Chollas, and Paleta Creek Trash Removal Efforts**
  - **Trash removal – over 500,000 lbs (250 tons) of material removed in last 10 years**
  - **Met with the City to partner in the trash clean up at the mouth of Chollas and Paleta Creeks.**

NBSD hosted Chollas Creek cleanup March 2021



Bay Health Enhancement – Water Quality Improvements

Controlled Unclassified Information (CUI)

Bay Health Enhancement – Natural Resource Enhancements

- **Natural Resource Inventory/Assessments/Monitoring**
  - **San Diego Bay Integrated Natural Resources Management Plan (INRMP)**
  - **Green Sea Turtles – monitoring efforts and signs and outreach**
  - **Marine Mammal Surveys**
  - **Fish Inventories**
  - **Waterbird Surveys**

Includes data collection to support status determination, density, distribution and seasonal migration, and protection and recovery

NMFS Permit #1591

- **Marine Invasive Species Assessments**
- **Ecological Functional Value Study**

Photo: Timothy Burr, 2017

Bay Health Enhancement – Natural Resource Enhancements

- **Natural Resource Inventory/Assessments/Monitoring**
  - **Le Meridian reef/Homeport Island/Smugglers Cove – artificial reef development and habitat monitoring of fish and crustaceans**
  - **Wildlife Assist and Rehabilitation**
  - **Acoustic studies supporting evaluating impact on fish and marine mammals**
  - **Least Tern and Snowy Plover habitat enhancements; nesting and foraging surveys**
  - **Diversion of sediment for offshore disposal to numerous beach replenishment projects**

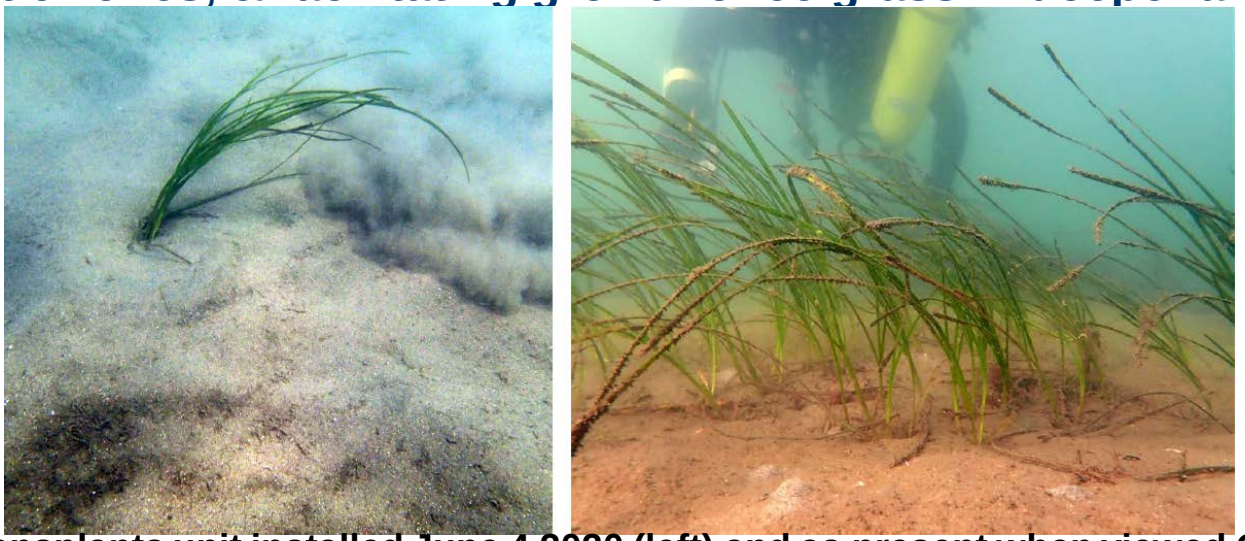
Photos: U.S. Navy

Bay Health Enhancement -Artificial Reef Repopulation Results

Photos indicating successful adaptation: Pier 12 Material Reuse FES, September 2016;
Pier 12 Fish Enhancement Structures Monitoring Report, Merkel and Associates, 2016, November.

Bay Health Enhancement – Natural Resource Enhancements

- **Eelgrass mitigation bank**
  - **First in the State and was the model for other banks in CA**
  - **Successful approach to mitigation for Navy activities in the Bay; grown from original ~8 acres to almost 14 acres in 2020.**
- **Cooperative Port/Navy Bay-wide eelgrass monitoring efforts**
  - **Last two years of monitoring identified record amounts of eelgrass**
  - **Expansion results in improved water quality in the bay, deeper photic zones, & facilitating growth of eelgrass in deeper areas**



Typical eelgrass transplants unit installed June 4 2020 (left) and as present when viewed October 29, 2020 (right). *Photo: Merkel and Associates, Smuggler's Cove FeISH Project, 6-month Eelgrass Transplant Report , 2020, November*

Bay Health Enhancement – Navy Managed Eel Grass Mitigation Banks 2020

Controlled Unclassified Information (CUI)

Figure 3. Eelgrass spatial distribution for San Diego Bay 2020 baywide survey
2020 San Diego Bay Eelgrass Inventory, NRSW, 2020 December

Navy Eelgrass Mitigation Bank Extent.
2020 San Diego Bay Eelgrass Inventory, NRSW, 2020 December

Summary

- **Navy has conducted investigation of sediment contamination and performed sediment cleanup in the bay at several locations**
- **Maintenance dredging is a required activity to support Navy mission, but is being coordinated with RWQCB and USACE; several dredging efforts planned over next five years**
- **Water quality was monitored during Bonhomme-Richard fire, and no evidence of long term contamination identified**
- **The Navy conducts numerous ongoing efforts designed to improve San Diego Bay water quality and enhance natural habitat**


Questions?